

*Cont'd and
B6C1*

an antifuse material layer disposed over said lower barrier layer;
an upper barrier layer disposed over said antifuse material layer;
an upper insulating layer disposed over said upper barrier layer;

an upper Cu metal layer planerized with a top surface of the upper insulating layer and having a contact extending therethrough to make electrical contact with said upper barrier.

4. (Amended) The metal-to-metal antifuse of claim 1 wherein said lower barrier material layer comprises a layer of TaN, said lower barrier layer encladded in said first cap layer.

10. (Twice amended) A method for fabricating a metal-to-metal antifuse comprising:

forming a metal layer under a lower Cu metal layer planarized with the top surface of a lower insulating layer;

forming a lower barrier layer over said lower Cu metal layer;

forming an antifuse material layer over said lower barrier layer;

forming an upper barrier layer disposed over said antifuse material

layer;

forming an upper insulating layer disposed over said upper barrier layer and said antifuse layer;

forming a via in said upper insulating layer to expose a top surface of said upper barrier layer;

forming an upper Cu metal layer over said upper insulating layer and in said via to make electrical contact with said upper barrier layer; and

planarizing a top surface of said upper Cu metal layer and a top surface of said upper insulating layer.